Finding of No Significant Impact
August 2002

Project to Prevent Polluted Runoff from Entering Wind Cave

Wind Cave National Park • South Dakota

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Wind Cave National Park, South Dakota

Wind Cave National Park was established in 1903 to protect Wind Cave from commercial exploitation. Since the original designation, the purpose of the park has been expanded from cave preservation to protection of both surface and subsurface resources. The primary feature of the park is the cave, recognized by spelologists worldwide as a significant site and known as one of the most complex cave systems in the world.

Cave systems are intimately tied to the movement and actions of groundwater, and pollution or disruption of natural hydrological systems can affect cave resources. Direct threats to caves can include leaky wastewater treatment ponds, oil and gas contamination, and leaching from landfills. Vulnerable cave invertebrates and delicate cave formations can be affected by contaminants.

Certain facilities within Wind Cave National Park pose a threat to surface water and groundwater quality and to the cave by infiltration of tainted water. The Visitor Center and park headquarters buildings are located directly above portions of Wind Cave. Because of the proximity of the parking area to the cave, concerns have been raised about pollution entering the cave and affecting its ecosystem. NPS staff have been monitoring cave water quality since 1993. Dye traces have shown that hydrocarbons (breakdown products of gasoline and other petroleum products) and other pollutants reach the cave from the parking lot in as little as eight hours. These pollutants pose threats to the formations and resources within the cave.

To protect the cave from stormwater contamination, the park will install a new parking surface with a stormwater collection and treatment system. The primary purpose for reconstructing the Visitor Center parking lot is to protect the cave ecosystem below. The proposed project will respond directly to NPS Management Policies (Section 4:20) that state "no potentially harmful development or use will be undertaken in, above, or adjacent to caves until it can be demonstrated that it will not significantly affect natural cave conditions, including subsurface water movements. Developments already in place above caves will be removed if they are significantly altering natural conditions." Facilities at Wind Cave were constructed in the 1930s to provide access to the cave.

NPS analysis of the need to preserve cave resources for future generations and review of current conditions of the Visitor Center parking lot led to development of the Preferred Alternative to provide long-term protection of cave resources, improve public safety/traffic patterns; reduce maintenance; disperse runoff; rehabilitate historic CCC curbing; and minimize surface disturbance.

PREFERRED ALTERNATIVE

The Preferred Alternative includes improvements to stormwater collection and installation of a stormwater treatment unit to prevent polluted runoff from entering the cave system. In addition to protecting the cave, a new concrete parking lot will provide a long-lasting, low-maintenance surface, and enhance public safety by providing an opportunity to improve traffic flow conditions. All components of the Preferred Alternative will be installed in developed and previously disturbed areas within the immediate vicinity of the Visitor Center and park headquarters.

Traffic safety and accessibility issues will be addressed by redesign of the existing parking lot and installation of new signs, traffic markings, and rumble strips. A significant change in the number of parking spaces is not desirable, as the current parking lot capacity correlates well with the availability of cave tours. To address public safety within the existing footprint, the lot will be redesigned to reduce major areas of traffic conflict and enlarge turning areas.

Once the asphalt parking lot surface is removed and the new stormwater collection system is installed, new Portland cement concrete pavement will be placed. The process undertaken to accomplish installation of the proposed system will be approximately as follows:

The existing parking lot will be divided in half, with removal of the old parking lot surface and installation of the new storm drainage system occurring as two separate halves. Work on the southern end of the parking lot will begin in September 2003, with completion anticipated by the end of November. Work on the northern half will begin in the spring of 2004, with completion in June. During construction, the parking lot will be accessible to visitors and staff through the open half of the parking lot.

The following components of the Preferred Alternative will be installed or implemented to protect Wind Cave from polluted runoff:

- Portland Cement Concrete (PCC) paving was chosen for its durability and because it will not contribute to long-term pollution in stormwater runoff.

- The first flush of runoff will be treated because it carries the majority of accumulated contaminants from the parking lot surface, and is the most effective quantity for treatment

- Mechanical treatment of stormwater will be achieved by an underground treatment unit. This system will remove 80 percent of sediment, oil, and grease from the stormwater runoff.

- Infiltration trench for groundwater recharge. Treated runoff will be discharged to the environment by an infiltration trench constructed in the Wind Cave Canyon drainage.

- Monitoring of stormwater and cave water quality will occur under a long-term, cooperative plan. This program will determine if primary treatment is adequate to protect the cave ecosystem. If not, secondary stormwater treatment may be added to the new system.

- Improvements to safety and traffic flow will be achieved by realigning the southern parking lot entrance; redesigning the center median; installing new signs and striping; and by reconstructing the "turnaround" at the north end of the parking lot.

ALTERNATIVES CONSIDERED AND DISMISSED

The choice of taking no action, along with analysis of all design options led to the dismissal of several alternatives that failed to meet the project objectives or generated unacceptable levels of disturbance.

No Action/Continue Current Management. Currently, runoff from the parking lot enters a stormwater collection system consisting of curbside storm drains and piping beneath the parking lot surface. Runoff from the parking lot carries pollutants that have accumulated on the parking lot. These substances are carried into the cave system below, by rain and snowmelt. In addition, retaining the asphalt surface would continue to expose the cave to contaminants.

Relocation of parking lot. During the conceptual stages of project development, the possibility of relocating the Visitor Center parking lot was considered. Relocating the parking lot would require a new access road, and construction of a route for foot and shuttle traffic to the Visitor Center. The new disturbance needed to accomplish this was deemed unacceptable.

Asphalt surface was excluded because of evidence that asphalt may contribute to hydrocarbon pollution.

Stormwater infiltration trench at base of slope adjacent to west side of parking area. Consideration was given to constructing a trench on the west side of the parking lot to intercept runoff from the hillside. Trench construction would adversely affect the historic landscape surrounding the Visitor Center and rehabilitation of the site would take many years. The adverse effects to park resources outweighed the benefits of diverting hillside runoff.

Secondary stormwater treatment. Secondary stormwater treatment has uncertain merit in removing additional pollutants from stormwater runoff, and so was eliminated from the current proposal. If water quality monitoring shows that there may be significant benefits relative to the drawbacks of installing such a system, it can be added at a later date.

Landscape treatment of captured stormwater. Landscape treatment of stormwater runoff requires construction of ponds or "artificial wetlands" where biological processes eliminate contaminants. These ponds require extensive maintenance and large areas for installation. The limited area available, as well as the sensitive nature of the Wind Cave Canyon drainage, prohibit the inclusion of this design alternative.

Peak flow treatment. Peak flow is the largest instantaneous volume of runoff generated during a precipitation event. Treatment of peak flow would require a larger stormwater treatment unit and expanded infiltration trench. This would increase disturbance, and was dismissed from analysis.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

As stated in Section 2.7.D of *Director's Order #12 and Handbook*, the environmentally preferred alternative is the alternative that would promote the national environmental policy expressed in the National Environmental Policy Act (NEPA) (Sec. 101 (b)). This includes alternatives that:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Preferred Alternative would enhance protection of sensitive cave resources by lowering hydrocarbon and other pollution being delivered into the cave system, addressing the first and third of the prescribed criteria. The Preferred Alternative also improves traffic flow through the Visitor Center parking lot, reducing risks to park visitors and staff. This achieves the second criterion. This alternative also provides protection of historic and cultural resources through careful treatment of the historic landscape and structures, ensuring their existence for the enjoyment of future generations. This attains the first, second and fourth of the listed criteria. Therefore, the Preferred Alternative would be the environmentally preferred alternative.

THE PREFERRED ALTERNATIVE AND SIGNIFICANCE CRITERIA

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

Implementation of the Preferred Alternative will produce long-term beneficial effects on both the human and natural environment. By reducing the amount of pollution entering Wind Cave, a long-term, minor to moderate beneficial effect will result. The cave will be better protected, ensuring enjoyment by future generations. By increasing the capacity of the stormwater management system, Wind Cave Canyon will be better protected from erosion events caused high stormwater flows. This will yield a long-term, negligible to minor, beneficial effect on soil resources in the canyon. Careful reconstruction of the parking lot area would have long-term, beneficial effects on cultural resources. Historic curbing would be retained and protected from future damage.

No significant adverse effects will occur as a result of implementing the Preferred Alternative. Installation of the new stormwater treatment system and parking lot surface will generate negligible to minor adverse effects only during construction activities. Air quality will be negligibly affected by fugitive dust and exhaust from equipment. Soils will be temporarily disturbed, but no new surface disturbance will occur. Wildlife will be affected in negligible to minor way by noise levels. This may cause wildlife to avoid the parking lot area during the construction period. Park operations will experience negligible to minor adverse effects, as access to facilities is temporarily limited during construction activities.

The degree to which the proposed action affects public health or safety

Public health and safety was an important issue addressed during development of the Preferred Alternative. Approximately 6,500 people visit Wind Cave National Park each day during peak season. The parking lot is often filled to capacity. In recent years, 1 or 2 "fender-bender" accidents have occurred in the parking lot each year. No injuries to pedestrians or drivers have been reported, but traffic flow and safety need to be improved. Improving traffic flow within the Visitor Center parking area will provide a negligible to minor benefit for public safety by reducing traffic/pedestrian conflict.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

There are no prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas within the project area. However, as described in the environmental assessment, the flora and fauna of the cave are highly specialized, and impacts to the cave system are considered long-term. Although the cave has not been designated as an ecologically critical area, the unique nature of its ecosystem warrants a high level of protection. Hydrocarbon pollution threatens the sensitive biota and delicate formations within the cave.

The Civilian Conservation Corps (CCC) installed the original park facilities. Several of the structures within the Visitor Center and park headquarters area are eligible for listing on the National Register of Historic Places. A small section of the CCC stone guardwall bordering the parking lot will be removed and replaced with care. With identified mitigation measures, the project would have no adverse effects to archeological, historic, ethnographic, or cultural landscape resources at Wind Cave National Park.

The degree to which the effects on the quality of the human environment is likely to be highly controversial

Implementation of the Preferred Alternative would not be controversial. There were no controversial impacts identified during the analysis done for the EA, and no controversial issues were raised during the public review of the environmental assessment.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

The risks to the quality of the human environment associated with the preferred alternative would be negligible. There were no highly uncertain, unique, or unknown risks associated with implementation of the Preferred Alternative.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

The preferred alternative neither establishes a National Park Service precedent for future actions with significant effects nor would it represent a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

Implementation of the Preferred Alternative will contribute long-term, minor to moderate beneficial effects for the cave system by limiting exposure to hydrocarbon pollution, and reducing the potential for damage to cave formations and biota.

The Preferred Alternative will not significantly impact the surface resources of Wind Cave National Park. Any adverse effects, in conjunction with the adverse impacts of any other past, present, or reasonably foreseeable future actions, will result in negligible to minor cumulative impacts to soils, vegetation, wildlife, and cultural and ethnographic resources.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources

Implementation of the Preferred Alternative will have no effect on known prehistoric or historic archeological resources. The project area was excavated during the 1930s and in subsequent construction projects. Thus, any artifacts found in these areas would lack provenience. Mitigating measures described in the EA, including monitoring, would help ensure protection of *in situ* archeological resources in the unlikely event any are uncovered by construction.

Construction would have both beneficial and adverse long-term direct impacts on historic structures built by the Civilian Conservation Corps. Realignment of the segment of stone guardwall will be preceded by documentation, and reconstruction will include the same general configuration and of the same placement of stones. This modest change will not be obtrusive, and few visitors will note the change.

Some of the existing CCC stone curbing has been damaged by vehicle parking and by snow removal. Under the Preferred Alternative, the existing stone curbing will be removed and

salvaged. Curbstones will be reset along the front of the Visitor Center where they would continue to be a visible and viable part of the historic landscape.

As confirmed by a July 8, 2002 letter received from the South Dakota State Historic Preservation Officer, State Historical Society, the preferred alternative described above in this FONSI would have no adverse effect to National Register-eligible or potentially eligible historic properties.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

There will be no affect to threatened or endangered species as a result of implementation of the Preferred Alternative because no federally listed species occur in the project area. The U.S. Fish and Wildlife Service was contacted regarding this project, and the Service agreed with the park's finding of no effect on threatened and endangered species.

Whether the action threatens a violation of Federal, state, or local environmental protection law

The preferred alternative would not violate any federal, state, or local environmental protection laws.

Impairment

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the preferred alternative would not constitute an impairment to Wind Cave National Park resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the project's Environmental Assessment, the fact that no public comments were received, relevant scientific studies, and the professional judgment of the decision-maker guided by the direction in National Park Service Management Policies. Although implementation of the project would cause short-term, localized adverse effects, in all cases these result from actions taken to preserve vital park resources. Overall, implementation of the Preferred Alternative would result in benefits to cave resources and would increase opportunities for their long-term enjoyment. Implementation of the Project to Prevent Polluted Runoff from Entering Wind Cave would not result in impairment.

PUBLIC INVOLVEMENT AND CONSULTATION

National Park Service internal discussions led to identification of the main issues to be addressed in this environmental assessment. Protection of park resources is the primary objective of the Project to Prevent Polluted Runoff from Entering Wind Cave. To obtain public input on the proposed project, an open house was held at the park on May 15, 2002.

Several Native American Tribes have demonstrated interest in the areas within Wind Cave National Park. The following tribes and tribal representatives received copies of the environmental assessment for review and comment.

Arapaho Business Committee
Cheyenne River Sioux Tribe
Cheyenne-Arapaho Tribes of Oklahoma
Crow Creek Sioux Tribal Council
Crow Tribal Council
Flandreau Santee Sioux Executive Committee
Fort Belknap Community Council
Oglala Sioux Tribal Council
Ponca Tribe of Nebraska
Rosebud Sioux Tribal Council
Santee Sioux Tribal Council
Shoshone Business Committee
Sisseton-Wahpeton Sioux Tribal Council
Spirit Lake Tribal Council

Fort Peck Tribal Executive Board
Lower Brule Sioux Tribal Council
Northern Cheyenne Tribal Council
Standing Rock Sioux Tribe
Three Affiliated Tribes Business Council
Yankton Sioux Tribal Council

During development of this environmental assessment, the park contacted the South Dakota Historic Preservation Officer, who concurred with the National Park Service's preferred alternative and finding of No Adverse Effect on July 8, 2002.

The U.S. Fish and Wildlife Service was contacted, and agreed with the park's finding of no effect on threatened and endangered species.

The Environmental Assessment was posted on the Wind Cave National Park website on 6 June 2002. The document was also mailed to a recipient list of state and local agencies and interested parties. No public comment has been received on the Environmental Assessment.

CONCLUSION

The Preferred Alternative would not constitute an action that normally requires preparation of an environmental impact statement (EIS). The Preferred Alternative would not have a significant effect on the human environment. Negative environmental impacts that could occur are short-term and of negligible to minor in intensity. There would be no significant impacts on public health, public safety, threatened or endangered species, or other unique characteristics of the region. There are no unmitigated adverse impacts on sites or districts listed in or eligible for listing in the National Register of Historic Places. No uncertain or controversial impacts, unique risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action would not violate any federal, state, or local environmental protection law nor would it result in the impairment of park resources or values.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended: Linda K. Stoll — Superintendent — 9/13/02 — Date

Approved: William W. Schenk — Midwest Regional Director — 9/24/02 — Date